AMENDMENTS TO THE DRAWINGS

The attached sheet of replacement drawings is submitted in compliance with 37 C.F.R. § 1.83(a) to replace the original sheet containing FIG. 4. The replacement sheet corrects the duplication of reference number 408, properly labeling the depicted column voltage line with reference number 406. No new matter is added.

ATTACHMENT: ONE REPLACEMENT SHEET.

REMARKS

Claims 1-30 remain pending in this application, and currently stand rejected. Claims 31-34 are newly added. The specification is amended to correct a typographical error. Support for this amendment is found throughout the specification, for example on page 6, lines 9-12. Figure 4 is amended to correct mislabeling of a feature shown therein. No new matter is added to the claims, the specification or the drawings with any amendment presented herein.

It is believed that the remarks laid out herein below attend to all rejections and further issues raised in the pending office action dated 02 March 2005. The numbered headings used herein reflect the numbering employed by the Examiner in the Office Action dated 02 March 2005.

In the Drawings

1. Drawing Correction

In accordance with 37 C.F.R. 121(d), the attached replacement sheet corrects a duplicate appearance of reference number 408 in FIG. 4. Amended FIG. 4 correctly shows column voltage line 406 and transistor 408, as described in the specification (see page 11, lines 1-5).

An identical copy of the replacement drawing has also been mailed to the Official Draftsperson, under separate cover.

2. Response to Remarks

Claim Rejections – 35 U.S.C. § 103(a)

For the purpose of the following discussion, the Examiner is respectfully reminded of the basic considerations which apply to obviousness rejections.

> When applying 35 U.S.C. §103, the following tenets of patent law must be adhered to:
>
> (A) The claimed invention must be considered as a whole;
> (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
> (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
> (D) Reasonable expectation of success is the standard with which obviousness is determined. MPEP §2141.01, *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1134 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

In addition, it is respectfully noted that, to substantiate a *prima facie* case of obviousness, the initial burden rests with the Examiner who must fulfill three requirements. More specifically:

> To establish a *prima facie* case of obviousness, three basic criteria must be met.
>
> **First**, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings.
> **Second**, there must be a reasonable expectation of success.
> **Finally**, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The ***teaching or suggestion*** to make the claimed combination **and** the ***reasonable expectation of success* must *both be found in the prior art,* and not *based on applicant's disclosure***. (emphasis and formatting added) MPEP § 2143, *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

The Examiner has rejected Claims 1-30 as being unpatentable over U.S. Patent No. 5,448,421 ("Matsuda") in view of U.S. Patent No. 6,391,483 ("Zhu"). Applicant respectfully disagrees and traverses the rejection, at least for the following reasons:

Claim 1: In order to render applicant's claim 1 *prima facie* obvious, the combined references must teach or suggest a soft-reference magnetic memory digitizing device including an array of soft-reference magnetic memory cells, each said soft-reference magnetic memory cell characterized by an alterable orientation of magnetization, the orientation changing upon the substantially proximate application of at least one externally-applied magnetic field as applied by a magnetically tipped stylus.

As the Examiner recognizes, Matsuda does not teach or suggest all of applicant's claim limitations. In particular, the Examiner notes that Matsuda does not show a soft-reference magnetic memory cell (page 3 of the pending Office Action). Matsuda also fails to teach or suggest additional limitations of claim 1. For example, Matsuda does not teach an externally applied magnetic field changing orientation of magnetization of a memory cell.

Matsuda shows and describes an information processing apparatus including a recording unit 2a, a probe electrode 10 and magnetic sensors 6, 6'. Matsuda specifies: "The ***entire*** apparatus is placed on an antivibration mount 1" (col. 5, lines 27-28, emphasis

added). As shown in FIG. 3 and described within Matsuda, probe electrode 10 and recording unit 2a are at least electrically connected by multiple power supplies. For example, "Reference numeral 15 is a power supply for applying a pulse voltage between a probe electrode 10 and a substrate electrode 3...[and] Reference numeral 15' is a power supply for applying a bias voltage between a probe electrode 10 and a recording layer 4". The two power supplies are also connected to "a computer for controlling the whole apparatus" (col. 6, lines 42-56). Magnetic sensors 6 and 6' are in turn connected to probe electrode 10, through intervening structures such as magnetic layer 5.

With respect to this description and the illustrated figures, it is clear that any and all magnetic fields as taught by Matsuda are ***internally generated and internally applied***. Any external magnetic fields would be beyond the control of the computer and as such would corruptively interfere with the internally generated magnetic fields. This differs significantly from applicant's ***externally*** applied magnetic field. For example, applicant teaches applying an external magnetic field "emanating from the tip of the stylus 110" (p. 7, lines 7-8). As shown in FIGs. 2a – 3, applicant's stylus 110 and magnetic field 212 emanating from said stylus are clearly external to digitizer 100.

Furthermore, Matsuda does not teach changing the orientation of magnetization in a memory cell. Rather, Matsuda teaches that magnetization patterns are recorded in layers 5, 5'. By moving the magnetic layers relative to one another, it is possible to introduce x-y coordinates, which are used to position probe electrode 10. In particular, "The probe can be moved into a desired region by moving respectively principal magnetic poles of magnetic sensors 6 and 6' into magnetization regions defined by "3" and "2" on magnetic layers 5 and 5'" (col. 7, lines 15-18). Recording is then performed 'by applying a pulse voltage between probe electrode 10 and substrate electrode 3. When the voltage exceeds a threshold value, "information is recorded in the recording layer 4. When the threshold value is exceeded the ***conductivity*** of the recording layer 4 changes significantly from its original conductivity. ***The recorded information can be read by detecting the bit having the changed conductivity***..."' (col. 6, lines 42-52, emphasis added). Moreover, the components, their structural arrangement and method of operation are distinctly different in the teachings of Matsuda.

Matsuda also fails to teach or suggest a magnetically tipped stylus. The Examiner appears to liken applicant's magnetically tipped stylus to probe electrode 10. However, as noted above, probe electrode 10 delivers a voltage. There is no indication whatsoever within Matsuda that probe electrode 10 is magnetically tipped. Rather, as noted, magnetic

sensors 6 and 6' in connection with magnetization regions on magnetic layers 5 and 5' serve to position the probe electrode. Adding a further magnetic element (i.e., a magnetic tip to probe electrode 10) might well interfere with the "highly precise position-detecting" (col. 2, line 64) touted in Matsuda.

As demonstrated, Matsuda fails to teach or suggest at least four limitations of claim 1: (a) a soft-reference magnetic memory cell (or an array thereof); (b) an externally applied magnetic field; (c) changing the orientation of magnetization of a soft-reference magnetic memory cell with said externally applied magnetic field, and (d) a magnetically tipped stylus.

These shortfalls in teaching or suggestion are not mitigated by Zhu. While Zhu also fails to teach or suggest all of the limitations of claim 1, more importantly, there is no teaching or suggestion within either Zhu or Matsuda to combine the references.

With respect to Zhu, Zhu fails to teach at least (b) an externally applied magnetic field, and (d) a magnetically tipped stylus. In addition, Zhu's basic structure and elemental function is different from applicant's soft-reference magnetic memory cell.

In reference to the latter point, Zhu shows and describes a memory element with a circular geometry and a circular magnetization configuration (see for example, Abstract and Claim 1). As noted by the Examiner, Zhu also shows and describes an anti-ferromagnetic layer of material 74 below a higher-moment layer 34, which is below a conductive layer 32, which is in turn below a "soft", or lower magnetic moment layer. In contrast, applicant's soft reference magnetic memory cell includes a soft reference layer 206, an intermediate layer 204 and a sense layer 202. The Examiner makes no mention of a sense layer within Zhu, and applicant agrees that Zhu does not teach or suggest applicant's sense layer. The Examiner does, however, reference Zhu's anti-ferromagnetic layer 74. If the Examiner is attempting to liken Zhu's anti-ferromagnetic layer 74 to applicant's sense layer, applicant respectfully notes that sense layer 202 is clearly described throughout the specification as a "ferromagnetic sense layer **202**"(page 7, lines 28-29). A ferromagnetic layer is obviously different from an anti-ferromagnetic layer.

It is possible that the Examiner meant to reference Zhu's magnetic layer 34 instead of anti-ferromagnetic layer 74. However, even if this was the Examiner's intention, applicant notes that magnetic layer 34 is functionally different from

ferromagnetic sense layer 202, at least because (a) it is covered with an anti-ferromagnetic layer, and (b) it is pinned.

Zhu teaches: "The anti-ferromagnetic material 74 pins the adjacent magnetic layer 34, which is defined as the hard set because it ***stays pinned in a certain magnetization configuration through an anti-ferromagnetic exchange***. The other magnetic layer 30 is then the soft set because it changes to reflect the data stored in the memory element 12." (col. 14, lines 12-17, emphasis added).

In sharp contrast to the teachings of Zhu, Applicant requires no such anti-ferromagnetic layer to pin sense layer 202; in fact, "sense layer **202** is ***characterized by*** an ***alterable orientation of magnetization*** M2. The orientation of magnetization M2 is changed upon the substantially proximate application of at least one externally-applied magnetic field **212**. More simply stated, ***the sense layer "senses" the presence of an external magnetic field 212 and can reorient itself accordingly***" (page 7, lines 28-32).

In addition to the above-noted structural and functional differences, and more specifically for point (b) above, Zhu does not teach an externally applied magnetic field. Zhu shows and describes a memory device 10 including "a memory element 12, first and second pairs of wordlines 14, 16, and a bit line 18" (col. 3, lines 50-52). Zhu teaches that word line pairs 14, 16 "generate a magnetic field that affects the memory element 12 and is used for both writing to and reading from the memory element 12" (col. 3, line 66 – col. 4, line 1). As shown in at least Zhu's FIGs. 1, 2 , 5, 16, 20, 21, 23 and 25-29, memory element 12 and wordlines 14, 16 are all components ***within device 10***.

Respectfully, Zhu teaches components ***within*** the device providing a magnetic field ***within*** the device that is ***locally effective within the device***. Externally applied magnetic fields are not discussed, and clearly would interfere with the purposefully internally provided and controlled magnetic fields. In contrast, applicant clearly recites and shows an external magnetic field supplied by stylus 110 (see applicant's FIGs. 2a-3). To provide the external magnetic field, it is clear from the teachings set forth by applicant that the stylus 110 is external as well.

Zhu additionally fails to teach a magnetically tipped stylus. Indeed, there is no mention whatsoever in Zhu of a stylus or any structure remotely resembling a stylus.

Respectfully, the prior art references **must** teach or suggest all of the claim limitations. Neither Matsuda nor Zhu teaches or suggests the use of externally applied magnetic fields or a magnetic stylus that is an external device. With respect to both Matsuda and Zhu, as the teachings focus upon internal fields only, it is reasonable to assume that external fields would corrupt the devices. Respectfully, in further addition, there is no suggestion or motivation to be found in either Zhu or Matsuda to spontaneously provide elements that neither describes, or to combine their respective teachings. In fact, the two references implicitly teach away from such combination.

Matsuda shows a recording unit 2a with a linear magnetization pattern, stating "As an example of the magnetization pattern, there is a pattern as indicated in FIG. 1(a). An arrangement of N pole and S pole (hereinafter abbreviated as N and S) is formed ***linearly*** and this direction is defined as the x-axis" (col. 4, lines 43-47; see also FIG. 4). In addition, "repeated patterns of N and S which are arranged linearly are arranged on a recording layer so as to be perpendicular to each other as shown in FIG. 2 and are made respectively, x-axis and y-axis" (col. 5, lines 13-16). Matsuda's precise positioning of probe 10 depends upon this linear magnetization pattern: "precision of relative position detection between probe electrode 10 and recording layer 4 is improved...***because the arrangement of the magnetic pattern is a lattice form***." (col. 9, lines 14-19).

As noted, Zhu's memory device 12 features a circular magnetization pattern. Such a circular magnetization pattern would not provide the linear, lattice-form magnetic pattern, and would thus hinder the desired precise placement of Matsuda's probe. The combination of Matsuda in view of Zhu would thus render Matsuda useless for its intended purpose. There is, therefore, neither reasonable expectation of success in combining the references, nor motivation to make such a combination. The combined references thus fail to provide the first, second *and* third criteria for establishing a *prima facie* case of obviousness.

In light of the above-mentioned failings of Matsuda in view of Zhu, applicant believes that claim 1 is patentable over the combined references. Withdrawal of the Examiner's rejection and allowance of claim 1 are respectfully requested

Claim 2: In order to render applicant's claim 2 obvious, the combined references must again teach or suggest a soft-reference magnetic memory digitizing

device including an array of soft-reference magnetic memory cells, each said soft-reference magnetic memory cell characterized by an alterable orientation of magnetization, the orientation changing upon the substantially proximate application of at least one externally-applied magnetic field as applied by a magnetically tipped stylus. In addition, claim 2 includes the limitation of applying the externally-applied magnetic field to at least one magnetic memory cell of the array.

As noted in the above arguments (incorporated herein by reference, in their entirety), Matsuda in view of Zhu fails to teach or suggest at least an externally-applied magnetic field and a magnetically tipped stylus. The combine references cannot, therefore, teach or suggest applying at least one external magnetic field to at least one magnetic memory cell of an array with a magnetically tipped stylus. As further noted with respect to claim 1, the combined references additionally fail under MPEP §2143 because there is neither motivation to combine references, nor expectation of success in making the combination.

Claim 3: Claim 3 depends from claim 2, thus benefiting from like argument, as is herein incorporated by reference. Furthermore, claim 3 includes a display coupled to the array of magnetic memory cells. Neither Matsuda nor Zhu make any mention of, or depict, a display. Withdrawal of the Examiner's rejection, and allowance of claim 3 is also respectfully requested.

Claim 4: In order to establish a prima facie case of obviousness over claim 4, Matsuda in view of Zhu must teach a soft-reference magnetic memory digitizing device with an array of soft-reference magnetic memory cells including the following:

(a) at least one ferromagnetic sense layer characterized by an alterable orientation of magnetization;
(b) at least one externally-applied magnetic field;
(c) at least one ferromagnetic soft-reference layer having a non-pinned orientation of magnetization;
(d) at least one intermediate layer forming a magnetic tunnel junction between the sense layer and the soft-reference layer;
(e) the sense layer not substantially affected by the soft-reference layer, and
(f) at least one magnetically tipped stylus for applying at least one external magnetic field to at least one magnetic memory cell of the array.

As shown herein in support of claims 1 and 2, Matsuda in view of Zhu does not teach or suggest elements (b) or (f), thus failing to establish a *prima facie* case of obviousness. In addition and as shown above, notwithstanding the missing elements of externally applied magnetic field and the magnetically tipped stylus, there is also no

motivation or reasonable expectation of success as the combined references appear non-functional.

Respectfully, Examiner's apparent view that it would be obvious to use an externally applied magnetic field is unfounded. Neither Matsuda nor Zhu teaches any method or operation to differentiate between external fields and internally generated fields, thus a combined device would suffer indistinguishable data corruption in the presence of an externally applied magnetic field.

Given at least the arguments presented herein in support of claim 4, applicant respectfully requests withdrawal of the Examiner's rejection, and allowance of claim 4.

Claims 5-9 depend from claim 4, and thus benefit from the above arguments, incorporated herein by reference in their entirety. However, there are additional reasons for patentability of claims 5-9 over Matsuda in view of Zhu, including but not limited to the following:

Claim 6: Claim 6 includes the further limitation "...wherein the magnetic tip of the stylus is a permanent magnet." As noted, neither Matsuda nor Zhu teaches or suggests a stylus. The combined references also fail to teach or suggest a stylus with a permanent magnet tip.

Claim 7: Claim 6 recites the additional limitation "...wherein the magnetic tip of the stylus is a current-carrying coil". Neither Matsuda nor Zhu teach or suggest a stylus tipped with a current-carrying coil.

Claim 8: Claim 8 recites a display coupled to the array of magnetic memory cells such that the orientation of a given sense layer is used locally within the display to determine the information displayed upon the display proximate to the given sense layer. As noted with respect to claim 3, the combined references do not teach or suggest a display. Neither do the references teach or suggest using the orientation of a sense layer to determine information displayed on a display.

Claim 9: Claim 9 recites a display characterized by an array of pixels, the display at least partially integrated with the array of magnetic memory cells, each memory cell further being coupled to at least one pixel. Again, the combined references do not teach or suggest a display. Matsuda in view of Zhu also fails to teach or suggest an array of pixels, integrating a display with an array of magnetic memory cells, or coupling a memory cell to at least one pixel.

Applicant has demonstrated multiple reasons for the patentability of claims 5-9 over Matsuda in view of Zhu. Reconsideration and allowance of claims 5-9 is thus respectfully requested.

Claim 10: In order to render claim 10 *prima facie* obvious, the combined references must teach or suggest each and every element of claim 10. Applicant notes that Matsuda in view of Zhu fails under 35 U.S.C. §103(a), because the combined references do not teach or suggest at least the following elements of claim 10:

(a) a soft-reference magnetic memory digitizing device;
(b) at least one externally-applied magnetic field, and
(c) at least one magnetically tipped stylus for applying at least one external magnetic field to at least one magnetic memory cell of the array

Support for the patentability of these elements over Matsuda in view of Zhu may be found in the arguments presented herein above in support of claim 1; said arguments are incorporated herein by reference. In light of at least these arguments, applicant believes that claim 10 is patentable and respectfully requests withdrawal of the Examiner's rejection, and allowance of claim 10.

Claims 11-15: Claims 11-15 benefit from claim 10, and therefore benefit from like argument. However, there are additional reasons for the patentability of claims 11-15. For example, claims 11-15 recite the same features described in claims 5-9, respectively. As noted herein above, the elements of claims 5-9 (and thus claims 11-15) are absent from Matsuda and Zhu. The arguments presented in support of claims 5-9 are hereby incorporated by reference, in their entirety. Given these arguments, applicant respectfully requests withdrawal of the Examiner's rejection, and allowance of claims 11-15.

Claim 16: In order to establish a prima facie case of obviousness over claim 16, Matsuda in view of Zhu must teach or suggest each of the following steps:

(1) providing an array of soft-reference magnetic memory cells, each characterized by a sense layer having an alterable orientation of magnetization and a soft-reference layer, the orientation of the sense layer changing upon the substantially proximate application of at least one externally-applied magnetic field;
(2) applying an external magnetic field to at least a portion of the array to change the magnetic orientation of at least one memory cell;
(3) reading the array by applying a sense current to the magnetic memory cells and reading the resistance of each cell, the sense current also sufficient to establish a magnetic field to orient the soft-reference layer during the read operation, and

(4) refreshing the array by applying a refresh current sufficient to align substantially all the memory cells to a predetermined orientation.

Matsuda in view of Zhu fail to teach or suggest at least:

(1) an array of soft-reference magnetic memory cells with a sense layer, the orientation of which changes upon substantially proximate application of at least one externally-applied magnetic field;

(2) applying an external magnetic field, and

(4) refreshing the array by applying a refresh current sufficient to align substantially all the memory cells to a predetermined orientation.

Elaborated support for items (1) and (2) may be found in the arguments provided in support of claim 1, hereby incorporated herein by reference in their entirety. As for item (4), Matsuda makes no mention of a refresh operation. Zhu generally teaches away from a refresh operation, for example stating of his device: "when embodied as a memory device, it does not need to be refreshed" (col. 2, lines 2-3).

Zhu further states that "the read operation does not change the state of the hard set, so the integrity of the data is maintained and a refresh step is not needed" (col. 9, lines 47-50). Even in the instance where Zhu does describe a refresh operation, the refresh operation functions "to return the ***soft set layer 30*** to its original magnetization configuration" (col. 14, lines 43-44, emphasis added). This differs from applicant's refresh operation. For example, applicant's refresh operation works upon a different layer. As supported by the specification, "following the read scan of the array **102**, the control logic **108** will refresh the array **102** as shown in block **512** by applying a refresh current sufficient to align substantially all the ***sense layers*** within the array **102** to a predetermined orientation" (page 13, lines 9-12, emphasis added). The sense layers are distinctly different from the soft-reference layers, which by their descriptive title, "soft-reference layers" do not have a set orientation, and performing a refresh upon them would be futile.

Applicant has demonstrated multiple patentable differences in claim 16. Withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested, as is allowance of claim 16.

Claims 17-20: Claims 17-20 depend from claim 16, thus benefiting from like argument. The arguments presented in support of claim 16 are therefore incorporated herein by reference, in their entirety. Claims 17-20 are also patentable over Matsuda in view of Zhu because the references fail to teach or suggest each and every limitation of the claims. For example:

Claims 18 and 19: Both claims 18 and 19 recite a display. As noted in support of claims 8 and 9, above, the combined references do not teach or suggest a display, or additional features of claims 8 and 9 related to the display. The arguments in support of claims 8 and 9 are hereby incorporated herein by reference, in their entirety.

Claim 20: Claim 20 recites "the condition of the digitizing device continuously cycles between reading and refreshing." As noted above in support of claim 16, Matsuda in view of Zhu does not teach applicant's manner of refreshing (i.e., refreshing by aligning substantially all the sense layers of an array). The combined references cannot, therefore teach applicant's manner of continuous cycling between reading and refreshing. In addition, Zhu teaches away from continuous reading and refreshing, specifying "the read operation does not change the state of the hard set, so the integrity of the data is maintained and a refresh step is not needed" (9, lines 47-50).

The continuous cycling is employed because applicant teaches a device that is specifically aware of and responsive to external magnetic fields. As neither Matsuda nor Zhu is intended for use with external magnetic fields, neither requires such cycling. Further, any such cycling if applied would effectively remove any data written by the internal components – a clear and undesirable behavior against the teachings of how either the Matsuda or Zhu devices are intended to operate, separately or if combined.

As shown, Matsuda in view of Zhu fails under 35 U.S.C. §103(a). Applicant thus respectfully requests withdrawal of the Examiner's rejection, and allowance of claims 17-20.

Claim 21: In order to render applicant's claim 21 obvious, the combined references must teach or suggest a method of using a soft-reference magnetic memory digitizing device having an array of magnetic memory cells, each memory cell characterized by:

(a) at least one ferromagnetic sense layer characterized by an alterable orientation of magnetization,

(b) the orientation changing upon the substantially proximate application of at least one externally-applied magnetic field; and

(c) at least one ferromagnetic soft-reference layer having a non-pinned orientation of magnetization; wherein the alterable orientation of the sense layer is not substantially affected by the soft-reference layer,

The method of claim 21 includes the steps of:

(1) applying an external magnetic field to at least a portion of the array to change the magnetic orientation of at least one sense layer;

(2) reading the array by applying a sense current to the magnetic memory cells and reading the resistance of each cell, the sense current also sufficient to establish a magnetic field to orient the soft-reference layer during the read operation; and

(3) refreshing the array by applying a refresh current sufficient to align substantially all the sense layers to a predetermined orientation.

As noted above in support of claim 1, the combined references fail to teach at least element (b) of the soft-reference magnetic memory cell. The combined references also fail to teach or suggest at least steps (1) and (3). Support for step 1 may be found, for example, in the arguments presented herein above in support of claim 16. Support for step (3) may be found in the support presented for claim 16. As such, all arguments in support of claims 1 and 16 are herein incorporated by reference. Given at least these arguments, applicant respectfully requests withdrawal of the Examiner's rejection, and allowance of claim 21.

Claims 22-25: Claims 22-25 recite the same features as found, respectively, in claims 17-20. As presented above, the combined references fail to teach or suggest all of these features. Arguments in support of these features are laid out herein above with regards to claims 17-20; said arguments are also incorporated herein by reference, in their entirety. Applicant respectfully requests withdrawal of the Examiner's rejection and allowance of claims 22-25.

Claim 26: In order to establish a prima facie case of obviousness over claim 26, the combined references must teach or suggest a method of using a soft-reference magnetic memory digitizing device including:

(1) providing an array of magnetic memory cells, each memory cell including, among other features, a ferromagnetic sense layer with an alterable orientation of magnetization, the orientation changing upon the substantially proximate application of at least one externally-applied magnetic field

(2) applying an external magnetic field to at least a portion of the array to change the magnetic orientation of at least one sense layer;

(3) reading the array by applying a sense current to the magnetic memory cells and reading the resistance of each cell, the sense current also sufficient to establish a magnetic field to orient the soft-reference layer during the read operation, and

(4) refreshing the array by applying a refresh current sufficient to align substantially all the sense layers to a predetermined orientation

Applicant has shown that Matsuda in view of Zhu does not teach or suggest an externally-applied magnetic field, as in steps (1) and (2). Support for this position is found, for example, in the arguments presented for claim 1. The combined references also fail to teach refreshing the array by applying a current to align sense layers to a predetermined orientation. Support for this position is found, for example, in arguments presented for claim 16, above. Each of said arguments (claims 1 and 16) are incorporated herein by reference. Given at least these arguments, applicant respectfully requests withdrawal of the Examiner's rejection and allowance of claim 26.

Claims 27-30: Claims 27-30 recite the same features as found, respectively, in claims 17-20 (and also in claims 22-25). Matsuda in view of Zhu does not teach or suggest each of these features, thus, a *prima facie* case of obviousness is not established. Arguments in support of the features of claims 27-30 are given with regards to claims 17-20; said arguments are also incorporated herein by reference, in their entirety. In light of these arguments, applicant requests allowance of claims 27-30.

CONCLUSION

For the reasons given above, and after careful review of the cited reference, applicant respectfully submits that Matsuda in view of Zhu does not result in, teach or suggest applicant's claimed invention.

In view of the above Remarks and the corrected drawing replacement sheet submitted herewith, applicant has addressed all issues raised in the Office Action dated 02 March 2005, and respectfully solicits a Notice of Allowance for claims 1-30. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Applicant believes that no fees are due; however, should any fee be deemed necessary in connection with this Amendment and Response, the Commissioner is authorized to charge deposit account 08-2025, referencing the Attorney Docket Number 200300379-1.

Respectfully submitted,

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